

IN THE CLAIMS

Claims 1-13 (Canceled)

14. (New) A database processing method, comprising the steps of:

partitioning a database table into a plurality of data storage areas for storing the table in an N-dimensional arrangement (where $N > 1$) by utilizing a key range partitioning or a hash partitioning;

determining columns of said database table to each of which a plurality of key ranges are allocated, wherein each of said columns corresponds to one of the N dimensions, and each of said columns is provided with said plurality of key ranges beforehand;

allocating one of said data storage areas for each of said key ranges which are assigned to each of said N columns;

storing partition definition information defining how each of said data storage areas is allocated to one of the key ranges into a dictionary; and

searching one of said data storage areas identified as the scope of a search, the identified data storage area being specified by key values corresponding to said N columns included in received data, referring to said dictionary.

15. (New) A database processing method, comprising the steps of:

partitioning a database table into a plurality of data storage areas for storing the table in an N-dimensional arrangement (where $N > 1$) by using a key range partitioning;

determining columns of said database table to each of which a plurality of key ranges are allocated, wherein each of said columns corresponds to one of the N dimensions, and each of said columns is provided with said plurality of key ranges beforehand;

allocating one of said data storage areas for each of said key ranges which are assigned to each of said N columns;

storing partition definition information defining how each of said data storage areas is allocated to one of the key ranges into the same dictionary on a Database Management System; and

storing data to be inserted into one of said data storage areas specified by key values corresponding to said N columns included in the data to be inserted.

16. (New) A database processing method, comprising the steps of:

defining a plurality of key ranges for each of as many as N columns of a database table;

receiving and analyzing a database definition information to allocate a data storage area for each of said key ranges which are assigned to each of said N columns; and

registering the analyzed database definition information defining how said data storage area is allocated to one of the key ranges into one dictionary.

17. (New) A database processing method, according to claim 16, further comprising the step of:

receiving and analyzing an SQL indicative of insertion of data into the database for storing the data to be inserted into said data storage area specified by key values corresponding to said N columns included in the data to be inserted.

18. (New) A database processing method, according to claim 16,

wherein said registering step includes registering the partitioning boundary value for each of respective partitioning keys, the partitioning range number given for the partitioned range by the partitioning boundary value, and the

storage area order number of the storage area of data constituted of partitioning the table, and

wherein the method further comprises the step of for determining said partitioning range number for each of respective partitioning keys from key values corresponding to said N columns included in data to be inserted and said partitioning boundary value of the data to be inserted, to determine a plurality of said storage area numbers as candidates, and then to insert the data to be inserted to the area of said storage area order number picked up as a common candidate with respect to each partitioning key.

19. (New) A database processing apparatus, comprising:
a command analyzer for receiving and analyzing database definition information that includes a plurality of partitioning keys for partitioning a table having the database and partitioning boundary values for each of partitioning keys, then defining a plurality of key ranges for each of as many as N columns of the database table with which said partitioning keys are associated by using said partitioning boundary values, and allocating a data storage area for each of said key ranges which are assigned to each of said N columns;

a dictionary for storing the definition information that defines a database; and

a dictionary manager for storing into said dictionary the information including partitioning definition information of the database table from said analyzed database definition information, said partitioning definition information defining how said data storage area is allocated to one of the key ranges.

20. (New) A database processing apparatus, according to claim 19,

wherein said command analyzer receives and analyzes an SQL indicative of data insertion to the database; and

wherein the database processing apparatus further comprises a storage area specification component for receiving key values corresponding to said N columns included in the data to be inserted, for receiving the partitioning definition information of said table from said dictionary through said dictionary manager, and for determining a storage area uniquely determined on the basis of a plurality of partitioning keys of the data to be inserted and said partitioning definition information.

21. (New) A computer readable recording medium that stores a database processing program, said program comprising the steps of:

partitioning a table constituting a database into a plurality of data storage areas for storing the table in an N-dimensional arrangement (where $N > 1$) by utilizing a key range partitioning or a hash partitioning;

determining columns of said database table to each of which a plurality of key ranges are allocated, wherein each of said columns corresponds to one of the N dimensions, and each of said columns is provided with said plurality of key ranges beforehand;

allocating one of said data storage areas for each of said key ranges which are assigned to each of said N columns;

storing partition definition information defining how each of said data storage areas is allocated to one of the key ranges into a dictionary; and

searching one of said data storage areas identified as the scope of a search, the identified data storage area being specified by key values corresponding to said N columns included in received data, referring to said dictionary.

22. (New) A computer readable recording medium that stores a database processing program executable on a computer, said program comprising:

an analyzing step for receiving and analyzing database definition information including a plurality of partitioning keys and the partitioning boundary values for each of respective partitioning keys, defining a plurality of key ranges for each of as many as N columns of a database table with which said partitioning keys are associated by using said partitioning boundary values, and allocating a data storage area for each of said key ranges which are assigned to each of said N columns; and

a registration step for registering thus analyzed database definition information defining how said data storage area is allocated to one of the key ranges into one dictionary.

23. (New) A computer readable recording medium that stores a program implementing a database processing method, said method comprising:

partitioning a table constituting the database into a plurality of data storage areas for storing the table in an N-

dimensional arrangement (where $N > 1$) by using a key range partitioning;

determining columns of said database table to each of which a plurality of key ranges are allocated, wherein each of said columns corresponds to one of the N dimensions, and each of said columns is provided with said plurality of key ranges beforehand;

allocating one of said data storage areas for each of said key ranges which are assigned to each of said N columns;

storing partition definition information defining how each of said data storage areas is allocated to one of the key ranges into a dictionary on the same Database Management System; and

storing the data to be inserted into one of said data storage areas specified by key values corresponding to said N columns included in the data to be inserted.

24. (New) A program for implementing a database processing method, comprising:

partitioning a table constituting a database into a plurality of data storage areas for storing the table in an N -dimensional arrangement (where $N > 1$) by utilizing a key range partitioning or a hash partitioning;

determining columns of said database table to each of which a plurality of key ranges are allocated, wherein each of said columns corresponds to one of the N dimensions, and each of said columns is provided with said plurality of key ranges beforehand;

allocating one of said data storage areas for each of said key ranges which are assigned to each of said N columns;

storing partition definition information defining how each of said data storage areas is allocated to one of the key ranges into a dictionary; and

searching said data storage areas identified as the scope of a search, the identified data storage area being specified by key values corresponding to said N columns included in received data, referring to said dictionary.

25. (New) A program for implementing a database processing method, comprising:

partitioning a table constituting a database into a plurality of data storage area for storing the table in an N-dimensional arrangement (where $N > 1$) by using a key range partitioning;

determining columns of said database table to each of which a plurality of key ranges are allocated, wherein each of

said columns corresponds to one of the N dimensions, and each of said columns is provided with said plurality of key ranges beforehand;

allocating one of said data storage areas for each of said key ranges which are assigned to each of said N columns;

storing partition definition information defining how each of said data storage areas is allocated to one of the key ranges in a dictionary of the same Database Management System; and

storing the data to be inserted into one of said data storage areas specified by key values corresponding to said N columns included in the data to be inserted.

26. (New) A program for implementing a database processing method, said method comprising:

an analyzing step for receiving and analyzing database definition information including a plurality of partitioning keys and partitioning boundary values for each of respective partitioning keys, defining a plurality of key ranges for each of as many as N columns of a database table with which said partitioning keys are associated by using said partitioning boundary values, and allocating a data storage area for each

of said key ranges which are assigned to each of said N columns; and

a registering step for registering thus analyzed database definition information defining how said data storage area is allocated to one of the key ranges into one dictionary.